Rc

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,301	10/06/2004	Ralph Antonius Cornelius Braspenning	NL 020285	6519

24737 7590 06/20/2007
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER
HOLDER, ANNER N

ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
06/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/510,301	BRASPENNING ET AL.
Office Action Summary	Examiner	Art Unit	
	Anner Holder	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *11/09/05.*

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Drawings

1.   Figures 1, 2(A-D), and 3 are objected to as depicting a block diagram without "readily identifiable" descriptors of each block, as required by 37 CFR 1.84(n). Rule 84(n) requires "labeled representations" of graphical symbols, such as blocks; and any that are "not universally recognized may be used, subject to approval by the Office, if they are not likely to be confused with existing conventional symbols, and if they are readily identifiable." In the case of figures 1, 2(A-D), and 3, the blocks are not readily identifiable per se and therefore require the insertion of text that identifies the function of that block. That is, each vacant block should be provided with a corresponding label identifying its function or purpose.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-9, 11 and 17 rejected under 35 U.S.C. 102(e) as being anticipated by Hu US

6,987,866 B2.

4.   As to claim 1, Hu teaches a motion estimation unit for estimating a motion vector for a

group of pixels of an image of a series of images, [Abstract] comprising: generating means for

generating a set of motion vector candidates for the group of pixels; [Abstract; Col. 2 Lines 39-

43; Col 4 Lines 64-67; Fig. 2 (204)] matching means for calculating match errors for the

respective motion vector candidates of the set; [Col. 1 Lines 54-57; Col. 3 Lines 1-9; Col. 2

Lines 55-62] selecting means for selecting a first one of the motion vector candidates as the

motion vector for the group of pixels, on basis of the match errors; [Col. 3 Lines 1-9; Col.5 Lines

49-65] and testing means for testing whether the group of pixels has to be split into sub-groups

of pixels for which respective further motion vectors have to be estimated, [Col. 2 Lines 7-17,

course to fine motion estimation subdivides pixel groups] similar to estimating the motion vector

for the group of pixels, [Col. 4 Lines 15-22] the testing being based on a measure related to a

particular motion vector of the series of images. [Col. 2 Lines 63-67]

5.   As to claim 2, Hu teaches a motion estimation unit as claimed in claim 1, characterized in

that the particular motion vector is the first one of the motion vector candidates. [Col. 4 Lines

15-22; Col. 5 Lines 47-65]

6.   As to claim 3, Hu teaches the group of pixels corresponds to a block of pixels and that the sub-groups of pixels corresponds to respective sub-blocks of pixels. [Col. 2 Lines 7- 22]

7.   As to claim 4, Hu teaches the testing means are designed to test whether a first one of the sub-blocks of pixels has to be split into further sub-blocks of pixels for which respective other motion vectors have to be estimated, similar to the motion vector being estimated for the block of pixels. [Col. 1 Line 55 - Col. 2 Line 17]

8.   As to claim 5, Hu teaches the matching means are arranged to calculate the match error of the motion vector which corresponds to a sum of absolute differences between values of pixels of the block of pixels and respective further values of pixels of a further block of pixels of another image of the series of images. [Col. 4 Lines 15-36]

9.   As to claim 6, Hu teaches the measure related to the particular motion vector is based on a difference between the motion vector and a neighbor motion vector being estimated for a neighbor block of pixels in the neighborhood of the block of pixels. [Col. 2 Lines 13-22]

10.   As to claim 7, Hu teaches the measure related to the particular motion vector is based on a difference between a first intermediate result of calculating the match error and a second intermediate result of calculating the match error, the first intermediate result corresponding to a first portion of the block of pixels and the second intermediate result corresponding to a second portion of the block of pixels. [Col. 4 Lines 15-39]

11.   As to claim 8, Hu teaches the testing means are designed to test whether the block of pixels has to be split into the sub-groups of pixels, on basis of a dimension of the block of pixels. [Col. 2 Lines 13-22; Col. 4 Lines 4-14]

12.   As to claim 9, Hu teaches a merging unit (218) for merging a set of sub-blocks of pixels into a merged block of pixels and for assigning a new motion vector to the merged block of pixels, by selecting a first one of the further motion vectors corresponding to the sub-blocks of the set of sub-blocks. [Col. 2 Lines 7-22]

13.   As to claim 11, Hu teaches a motion estimation unit as claimed in claim 3, characterized in the being arranged to calculate normalized match errors. [Col. 5 Lines 62-65]

14.   As to claim 17, Hu teaches a method of estimating a motion vector for a group of pixels of an image of a series of images, [Abstract] comprising: generating a set of motion vector candidates for the group of pixels; [Abstract; Col. 2 Lines 39-43; Col 4 Lines 64-67; Fig. 2 (204)] calculating match errors for the respective motion vector candidates of the set; [Col. 1 Lines 54-57; Col. 3 Lines 1-9; Col. 2 Lines 55-62] selecting a first one of the motion vector candidates as the motion vector for the group of pixels, on basis of the match errors; [Col. 3 Lines 1-9; Col. 5 Lines 49-65] and testing means for testing whether the group of pixels has to be split into sub-groups of pixels for which respective further motion vectors have to be estimated, [Col. 2 Lines 7-17, course to fine motion estimation subdivides pixel groups] similar to estimating the motion vector for the group of pixels, [Col. 4 Lines 15-22] the testing being based on a measure related to a particular motion vector of the series of images. [Col. 2 Lines 63-67]

15.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hu US 6,987,866

B2 in view of Martens et al. (Martens) US 6,252,974 B1.

17.   As to claim 10, Hu teaches the limitations of claim 3.

        Hu does not specifically teach characterized in comprising an occlusion detector for

controlling the testing means.

        Martens teaches occlusion detector for controlling the testing means. [Col. 2 Lines 62-65;

Col. 5 Lines 49-54; Col. 7 Lines 17-21; It would be obvious to one of ordinary skill in the art that

the occlusion detector could control testing means due to the occlusion detector encompassing

motion estimation feature]

        It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine Martens occlusion detector with the motion estimation teachings of Hu,

allowing the for stabilization of the motion estimation [Martens Col.2 Lines 24-26]

18.   Claims 12, 13, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu US

6,987,866 B2 in view of Chiu et al. (Chiu) US 6,366,705 B1.

19.   As to claim 12, Hu teaches An image processing apparatus comprising: - receiving means

for receiving a signal representing a series of images to be processed; [Abstract] a motion

estimation unit for estimating a motion vector for a group of pixels of an image of a series of

images, [Abstract] comprising: generating means for generating a set of motion vector

candidates for the group of pixels; [Abstract; Col. 2 Lines 39-43; Col 4 Lines 64-67; Fig. 2

(204)] matching means for calculating match errors for the respective motion vector candidates

of the set; [Col. 1 Lines 54-57; Col. 3 Lines 1-9; Col. 2 Lines 55-62] selecting means for

selecting a first one of the motion vector candidates as the motion vector for the group of pixels,

on basis of the match errors; [Col. 3 Lines 1-9; Col. 5 Lines 49-65] and testing means for testing

whether the group of pixels has to be split into sub-groups of pixels for which respective further

motion vectors have to be estimated, similar to estimating the motion vector for the group of

pixels, the testing being based on a measure related to a particular motion vector of the series of

images. [Col. 1 Line 55 - Col. 2 Line 17]

Hu does not specifically teach a motion compensated image processing unit for

processing the series of images, which is controlled by the motion estimation unit.

Chiu teaches a motion compensated image processing unit for processing the series of

images, which is controlled by the motion estimation unit. [Fig. 1; Fig. 2]

It would have been obvious to one of ordinary skill in the art to infuse the device of Chiu

with the motion estimation teachings of Hu, allowing for improvement of inter-frame prediction

by exploiting the temporal redundancy in a sequence of frames [Chiu - Col. 2 Lines 4-20]

20.   As to claim 13, Hu (modified by Chiu) teaches an image processing apparatus as claimed

in claim 12, characterized in that the motion compensated image processing unit is designed to

perform video compression. [Chiu – Fig. 1; Fig. 2; Col. 1 lines 15-18]

21.   As to claim 16, Hu (modified by Chiu) teaches an image processing apparatus as claimed

in claim 12, characterized in that the motion compensated image processing unit is designed to

perform an up-conversion. [Col. 1 Lines 32-36; Col.1 Lines 55-62]

22.   Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hu US 6,987,866

B2 in view of Chiu et al. (Chiu) US 6,366,705 B1 further in view of Kokaram US 5,500,685.

23.   As to claim 14, Hu (modified by Chiu) teaches a processing apparatus as claimed in

claim 12.

Hu does not specifically teach the motion compensated image processing unit is designed to reduce noise in the series of images. [Col. 1 Lines 69 – Col. 2 Line 6]

Kokaram teaches the motion compensated image processing unit is designed to reduce noise in the series of images. [Col. 1 Lines 69 – Col. 2 Line 6; Abstract]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Kokaram's teachings of noise reduction with the motion estimation teachings of Hu, improving image quality.

24.   Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hu US 6,987,866 B2 in view of Chiu et al. (Chiu) US 6,366,705 B1 further in view of Sezan et al. (Sezan) US 5,682,205.

25.   As to claim 15, Hu (modified by Chiu) teaches an image processing apparatus as claimed in claim 12.

Hu does not specifically teach the motion compensated image processing unit is designed to de-interlace the series of images.

Sezan teaches the motion compensated image processing unit is designed to de-interlace the series of images. [Col. 8 Lines 65 – Col. 7 Line 21; Abstract]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of de-interlace of frames with the motion estimation teachings of Hu incorporated into the compression device of Chiu, allowing for an increase in accuracy of estimated local motion vectors. [Col. 4 Lines 24-25]

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Anner Holder whose telephone number is 571-270-1549. The

examiner can normally be reached on M-Th, M-F 8 am - 3 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ANH 06/07/07

MEHRDAD DASTOURI
SUPERVISORY PATENT EXAMINER
TC 2600